P.E. Buffam R04 3634

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HEMLOCK LOOPER CONTROL TESTS IN CLATSOP COUNTY, 1962

By: Warren Knispel

Spraying for the control of hemlock loopers in the test areas began July 2 and terminated July 16. Approximately 32,531 acres of timberland were involved with 24,877 acres privately owned by Crown Zellerbach. Test sites were established in different watersheds to determine what effect the control chemical D.D.T. would have on fish life. The insecticide contained one-half pound of technical grade D.D.T. dissolved in 0.625 quarts of an auxiliary solvent diluted with number two fuel oil to make one and one-half gallons applied per acre.

The chemical was found in fish from Gnat Creek and in water samples from the Walluski River and Tucker Creek. Water and fish samples were taken from Gnat Creek, Tucker Creek and the Walluski River prior to the time the area was treated for pre-spray tests. The analyses of these and subsequent samples were made by the Department of Agricultural Chemistry at Oregon State University. The sensitivity of the analytical methods used was 0.2 ppm. for fish and 0.0005 ppm. for water.

Application of the chemical was to have been made from one to three-hundred feet above tree top level except where safety made it necessary to fly above. Buffer strips were to be left unsprayed along particular areas of streams. The stream tests are discussed in more detail in the following paragraphs.

Gnat Creek

The Gnat Creek area was sprayed July 2 and was the first phase of the project. Oil sensitive cards, developed by the Agricultural Research Service, were used to determine the amount of solution falling on the area. Because of wind drift and or pilot error the cards placed at Gnat Creek Weir indicated a dose up to 0.25 pounds per acre which is considered heavy. Some spray also hit Gnat Creek Hatchery ponds which was out of the spray area. Highway 30 was the proposed boundary.

Fish observed directly below the weir appeared normal shortly after spraying although on July 14 a dead five inch cutthroat was retrieved from the weir and contained 0.38 ppm D.D.T. residue in the muscle and 0.36 ppm residue in the intestines. The mortality apparently was not heavy as all fish moving downstream were collected and only three dead fish were obtained. There were two not analyzed because of advanced decomposition. Fingerling hatchery-reared steelhead were observed at all times below the weir.

Water samples taken the same day of spraying, July 2 and after a rain on July 6, disclosed no detectable residues. Stream flow at the early date was seventeen cubic feet per second.

Klaskanine South Fork

Spraying started on the south fork July 3 but was discontinued until July 9 to allow the looper larvae further development. Twenty silver salmon of zero age class were held in a live box for one week prior to and for two weeks after the spray period with no loss.

Spray indicator cards disclosed that no material had fallen near the river at that site. Fish and water samples were found free of any D.D.T. residue after spraying and after a one inch rain at a later date. Calculated stream flow on the south fork was twelve cubic feet per second.

Tucker Creek

The Tucker Creek watershed was sprayed July 11 and upper creek areas near the Vandervelt residence showed a slight oil film. Water samples taken shortly after spraying revealed a 0.0007 ppm residue but fish samples were clean. Spray indicator cards estimated the amount of D.D.T. to hit the area at 0.033 to 0.1 pounds pounds per acre. Samples of water and fish taken August 4, after a rain, were free of D.D.T.

A trap was installed near the above residence to collect fish mortalities, if any, from spraying. The stream flow was 1.4 cubic feet per second.

Johnson Creek

A live box was placed in Johnson Creek just above the last residence on the county road. Spraying was completed July 10 and the twelve zero age silver salmon, two four inch cutthroat and one cottid were held for twenty-eight days without loss. A dead immature frog, collected from a fish pond in the spray area, was suspected of containing D.D.T. but none appeared in the tests. Water samples were not taken from the stream with a flow of 1.25 cubic feet per second. Spray indicator cards showed no deposit although spots could be seen on a farm fish pond in the same area.

Walluski River

Looper control was completed July 16 and water samples taken two hours after spraying had a concentration of 0.0007 ppm D.D.T. Fish samples were not analyzed but ten zero age silver salmon and one small cottid were held in a live box for thirty days without loss. The stream flow was 4.4 cubic feet per second.

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Although the tests made were not elaborate, it appeared that little loss of fish life occurred while spraying for the hemlock looper. The U.S.F.S. Entomologist, Paul Buffam, estimated an eighty-five percent looper kill and sufficient to relieve the timber defoliating problem.

cc: Regional Office
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